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10/552,454	10/07/2005	Yutaka Ikeda	1248-0818PUS1	2348

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EXAMINER	
PATEL, DHAVAL V	

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
07/20/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/552,454	IKEDA ET AL.	
	Examiner	Art Unit	
	DHAVAL PATEL	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *44-47,60,61 and 88* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *44-47,60,61 and 88* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The rejection of claims with respect to 35 USC 112, 2nd paragraph has been withdrawn.

2. The rejection of claims with respect to 35 USC 101 has been withdrawn.

3. Applicant's arguments filed on 3/25/2009 with respect to election/restriction requirements have been fully considered but they are not persuasive.

a). Regarding applicant's argument that the feature of Species 1 of "making that pulse width ...closer to a predetermined pulse width is generic (comprehensive concept) to the underlined features of Species 4, 6, and 9. To be more specific, "a predetermined pulse width in Species 1 is embodied as "a minimum pulse width of the input signal in the sampling signal" in Species 4, "(pulse width) equal to an inverse number of the sampling clock frequency" in Species 6, and "the first reference value in Species 9.

Regarding applicant's specific argument, examiner offers that, Species 1 describes making pulse width closer to a predetermined pulse width, which is different from the minimum pulse width of the input signal in the sampling signal of species 4 because the predetermined pulse width is not necessarily a minimum pulse width, predetermined pulse width may not be the minimum pulse width. Predetermined pulse width could be other than minimum or greater than minimum pulse width. Regarding species 6, species 1 and 6 are not the same because predetermined pulse width and equal to an inverse number of the sampling clock frequency is totally different which

also requires additional burden for examiner to examine and find the different limitations because predetermined pulse width is not necessarily an inverse number of the sampling clock frequency. Species 1 and 9 is also different enough for searching process, Species 9 recites two different reference value and compare the pulse width the two reference values would also require additional burden for examiner than the species 1 which recites adjusting pulse width closer to a predetermined pulse width which is not the same as pulse width is made closer to the first reference value.

For the above mentioned reasons, examiner has maintained the same ground of restriction/election requirements. Hence, examiner will respond to Species 1 with elected claims 44-47, 60, 61 and 88.

4. Applicant's arguments with respect to claims 44 and 88 have been considered but are moot in view of the new ground(s) of rejection because of newly added limitations into currently amended claims by applicant. Respond to the amendment is described below.

Claim Objections

5. Claims 60 and 61 are objected to because of the following informalities:

Claims 60 and 61 both are dependent upon claims 44, 48, 51 through 57 however, during election/restriction requirements, species 1 is elected which is independent claim 44, applicant is hereby suggested to have claims 60 and 61 dependent upon claim 44 only since clam 44 is the elected species.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: ***(See MPEP Ch. 2141)***

a. Determining the scope and contents of the prior art;
b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

7. **Claims 44, 46, 47 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al. (JP-2001-145184) (hereafter Fukuda) (see IDS) in view of Schuppe et al. (US 6,198,766)(hereafter Schuppe).**

Regarding claim 44, Fukuda discloses a waveform shaping method comprising:

a waveform shaping step for processing the sampling signal, so that a pulse in the input signal, recognized from the sampling signal, is shaped (claim 1, remote controller signal receiving device comprising a waveform correction section for modifying a pulse width of the remote controller signal, here, sampling does not explicitly disclosed but would be obvious as described below),

a waveform shaping step for processing the sampling signal (claim 1, pulse shaping or waveform correcting to modify a pulse width), so that a pulse in the input signal, recognized from the sampling signal, is shaped (claim 1, pulse shaping to modify the pulse), where the waveform shaping step is performed by a processor, the waveform shaping step being such that, when the input signal is a pulse signal, the pulse signal being generated through a signal processing carried out with respect to an original pulse signal on which the input signal is based (page 2, [0003] discloses that is the infrared carrier signal from the infrared remote controller is received by intermediary device and then transmitted to the controller device via the intermediate device, since the error is accumulated in the pulse width using the intermediate device, an error amount exceeds the tolerance amount, so here, the input signal received is distorted by the intermediary device) , waveform shaping is carried out by making that pulse width of the input signal which is recognized from the sampling signal closer to a predetermined pulse width, irrespective of the pulse width (page 2, [0021] waveform shaping section shapes into a rectangular waveform on the basis of whether the signal is larger than the reference level, page 3, [0022] discloses by appropriately determining the time constant also related to the leading and trailing edge pulse and reference level, adjusting the pulse width), wherein

the predetermined pulse width is determined so that the pulse width of the input signal is made closer to the pulse width of the original pulse signal (page 3, [0022] discloses by appropriately determining the time constants and the reference level, it is possible to coincide the pulse width of the remote controller signal subjected to the

waveform shaping with the original pulse width of an original pulse width of the remote controller signal).

But, Fukuda does not explicitly disclose sampling step for generating a sampling signal by sampling an input signal using a sampling clock which is faster than a data speed of the input signal.

However, in the same field of endeavor, Schuppe teaches a waveform shaping method comprising a sampling step for generating a sampling signal by sampling an input signal using a sampling clock which is faster than a data speed of the input signal (Fig. 1, col. 4 lines 40-50 and lines 56-59 discloses infrared transceiver with sampling clock input, 24, the clock input signal is derived from sampling clock and period was six times over the sampling clock rate); and providing to pulse shaping to adjust the width.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Schuppe, into the system of Fukuda, as a whole, so as to provide the sampled signal to the pulse shaping to modify the width of the input signal to coincide the pulse width of the remote controller signal subjected to the waveform shaping with the original pulse width of an original pulse width of the remote controller signal, the motivation is to improving the communication reliability in high speed optical communication (col. 1 lines 5-10).

Regarding claim 46, Fukuda does not explicitly disclose the waveform shaping method, wherein the predetermined pulse width is a value closer to a limit value of a possible pulse width range of the input signal.

However, in the same field of endeavor, Schuppe teaches waveform or pulse shaping method in which operation is performed on tail ends of stored pulses either shortening or lengthening the stored pulses respectively (col. 5 lines 3-6).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to incorporate the teachings of Schuppe, into the system of Fukuda, as a whole, so as to shortening the pulse width of the input signal to generate the waveform shaping, the motivation is to improving the communication reliability in high speed optical communication (col. 1 lines 5-10).

Regarding claim 47, Fukuda further discloses the waveform shaping method wherein if the input signal contains information related to the pulse width of the input signal, the information is read out, and the predetermined pulse width is determined based on the information (page 3, [022], trailing and leading edge of the remote controller signal is considered here an information based on which the pulse width is adjusted by adjusting the time constants and reference level to generate waveform shaping)

Regarding claim 61, Fukuda further discloses the waveform shaping method of claim 44, wherein: in the waveform shaping step, waveform shaping is carried out by processing a part of the sampling signal, corresponding to a trailing side of the pulse in the input signal (page 3, [0022], pulse shaping by adjusting the time constant related to trailing part of the signal).

8. **Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda and Schuppe, as applied to claim 44 above, and further in view of Lobo et al. (US 7,274,747) (hereafter Lobo).**

Regarding claim 45, Schuppe and Fukuda do not explicitly disclose the waveform shaping method, wherein the predetermined pulse width is standardized, irrespective of the pulse width of the input signal, taking into account a level of distortion in the pulse width, the distortion mainly attributed to the signal processing.

In the same field of endeavor, Lobo teaches a method for compensating for nonlinear distortion. Also, col. 11 lines 55-60 teach a particular communication system and provide compensation for distortion using pulse shaping. Furthermore, col 11 lines 55-67 teaches the pulse shaping are looked at the component distortion such as non linearity and error from the values that the particular system requires and amount of pre-distortion to be compensated for are considered.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Lobo, into the system of Schuppe and Fukuda, as a whole, so as to consider the distortion parameter into pulse shaping to

reduce distortion, the motivation is provide pre-distortion to compensate for distortion introduced by components in the device (col. 1 lines 13-16).

9. **Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda and Schuppe, as applied to claim 44 above and further in view of Shimizu et al. (US 6, 107,850) (hereafter Shimizu).**

Regarding claim 60, Fukuda and Schuppe do not explicitly disclose the waveform shaping method, wherein: in the waveform shaping step, waveform shaping is carried out by partially inverting bit string of the sampling signal.

in the same field of endeavor, Shumizu teaches output pulse width control system in which as shown in Fig. 4, it discloses pulse width modulating signal and generating the pulse for reducing the pulse width (Fig. 11, 4) and pulse for enlarging pulse width (Fig. 11, 3) and the pulse for enlarging the pulse width is generated through inverter (Fig. 11, 23) to generate inverted pulse signal.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Shimizu, into the system of Fukuda and Schuppe, as a whole, so as to generate the inverted bit stream of sampling of Schuppe using the teachings of Shumizu, as a whole, the motivation is to provide efficient pulse width control system.

10. **Claim 88 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda and Schuppe as applied to claim 44 above, and further in view of Langberg et al. (US 5,852,630) (hereafter Langberg).**

Regarding claim 88, Fukuda and Schuppe discloses all the subject matter except for waveform shaping program for causing a computer to execute steps included in a waveform shaping method,

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with recoding can be implemented in software stored in computer-readable medium. The computer readable medium is an electronic, magnetic, optical or other physical device or means that can be contain or store a computer program for use by or in connection with a computer related system or method (col. 3 lines 51-65). One skilled in the art would have clearly recognized that the method of Fukuda and Schuppe would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Landberg et al. in the Fukuda and Schuppe in order to reduce cost and improve the adaptability and flexibility of the communication system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHAVAL PATEL whose telephone number is (571)270-1818. The examiner can normally be reached on M-F 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 2611
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